

Case Study Overview

Goal

This case study is the final step of the interview process for the Data Solutions Consultant role and you will be presenting to a panel of members selected from the Addepar Services Team. The goal of this case study is to gain an understanding of your ability to understand new concepts, problem solve with limited information, demonstrate your technical proficiency working with data, and the ability to present these concepts to a client.

Duration

60 minutes is reserved for the case study to provide a sufficient amount of time for the presentation, Q&A and debrief.

Schedule

5 min:	Intros and set up
15-20 min:	Part I (presentation and Q&A)
15-20 min:	Part II (presentation and Q&A)
5-10 min:	Case study debrief

Presentation

Be prepared to present from your own computer using Google Meet (review the steps in this [link](#) before the case study if you haven't presented in Google Meet before).

Collateral

Since you will be presenting from your own computer you may use any type of visual aides in addition to your presentation slides to address any key points.

The day of your interview, send a copy of the complete set of data files you transformed in addition to your presentation to services-recruiting@addepar.com for the case study panel to review.

Audience

Your target audience for Part I of the case study is the client's project team which could include their project manager, data SME, operations manager, wealth advisor, etc (these roles will be assumed by the case study panel). For Part II, your audience will be the case study panel.

Materials

Included in this document: Instructions, Client Profile & Requirements and Conversion Method Overview

Included in the shared drive: Client files, import templates, data mapping files

Instructions

Background

You've been assigned as the lead Data Solutions Consultant on a historical data conversion project for a new client. In your first meeting with the client you gathered their reporting requirements and requested that they provide you with historical data files for one sample account so you can review this information and provide a recommendation about which conversion method will be the best fit for them. They have provided you with the files you requested and you now have everything needed to move forward with the next steps in the process.

Part I

Review the historical data files that the client has shared with you as well as their reporting requirements to determine which conversion method will be the best fit for them. Once you have determined which method you're going to recommend, prepare a presentation to educate the client on the different data conversion methods available, highlight the method you're recommending and why you're recommending that method.

Part II

Using the historical data files provided by the client, transform the data into the required Addepar format for each file required by the conversion method you've recommended.

Come prepared to present and discuss with the case study panel:

- Your process and methods to transform the data set with examples.
- Did you run into any challenges and how did you overcome them?
- Do you have any recommendations to the client to adjust the output of the data files they provided?
- Do you have any suggestions about how to improve the process?
- What did you learn and if you were to go through the exercise again what would you do differently?
- Optional: Once the data is loaded into Addepar, how would you recommend the client validates the Addepar data compared to the source data to confirm its accuracy?

Client Profile & Requirements

Client Profile

- Legacy system will be decommissioned in 8 months
- Self-sufficient and knowledgeable about the portfolio data in their legacy system
- Values flexibility over exactness
- Have multiple resources from their operations team that are available to help with the conversion project if needed
- Willing to increase their budget and resources if they can see added value in a proposal
- Prefers simple solutions to provide a better experience for their diverse user base ranging in age and technical ability
- Expressed that it would be nice to have historical transactions available to use for reference

Reporting Requirements

Need to report on 3 levels:

1. Household (highest reporting level)
2. Client
3. Account (lowest reporting level)

Reporting metrics:

- TWR
- Value
- Cash flows

Reporting Interval:

- Monthly

Data Availability

The client confirmed with you that the sample files they provided were generated from standard reports built into their legacy system and if other formats are required they will need to involve a technical resource or consultant to help build new custom reports to meet any additional data requirements.

Conversion Method Overview

Method #1 - Summary Data

Description

Static performance/return metrics are loaded directly onto entities (Client, Holding Account, Securities, etc) in Addepar.

Data loaded using this method is not aggregated and recalculated at higher levels of ownership. If the client is required to report on three levels, Client > Account > Security, then the return data needs to be loaded separately on each of the three levels:

1. Client returns on the client level (account returns aggregated)
2. Account returns on the account level (security returns aggregated)
3. Security returns on the security level

Pros

- Matches historical metrics exactly
- Fastest and least expensive method to implement
- Easiest method to extract data from the legacy system

Cons

- Data loaded using this method is not aggregated and recalculated at the ownership levels above from where the summary data is loaded
- Data needs to be loaded at every ownership level that will be displayed in reports
- Less flexibility with reporting since table groupings need to match exactly how the summary data is loaded
- Learning curve is higher compared to other methods for users to understand how summary data works

Available metric

- | | |
|-------------------|-------------------|
| • Fees | • Realized Gain |
| • Income/Expenses | • Total Return |
| • Net Cash Flow | • TWR |
| • Net Deposits | • Unrealized Gain |
| • Net Gain/Loss | • Value |

Data requirements

Complete data history with no data gaps for the time interval selected (daily, monthly, quarterly, annually) for each metric at every reporting level.

Example:

If the client requirement is to report TWR on three levels (e.g. Household > Client > Account) at a monthly interval for 5 years, then they would need to provide 60 TWR values for each level and 180 in total for all three levels.

If this same client is also required to include Value and Net Cash Flow metrics in their reports in addition to TWR over the 5 years of history at all three levels, then the data set they would need to provide would require 540 values in total (180 for each of the 3 metrics). If this client had 200 total households with the same structure as listed above to include in the scope of the data conversion project, then 108,000 values would need to be provided to build the data history using summary data.

Required import templates

Type	Import Template
Summary Data	Summary Data

Example 1 - Security level summary data

TWR values loaded on each security held within an account do not aggregate and recalculate at the account level.

Entity	Owner	Entity Type	TWR	Comments
Account A	Adam Smith	Holding Account	-	← TWR does not calculate because the 3 TWR values loaded on the securities held by this account are not aggregated and recalculated at the level above
AAPL	Account A	Stock	3.00%	← TWR value of "3.00" loaded as summary data directly on AAPL position
CRM	Account A	Stock	2.50%	← TWR value of "2.50" loaded as summary data directly on CRM position
INTC	Account A	Stock	5.00%	← TWR value of "5.00" loaded as summary data directly on INTC position

	= Summary data loaded on this level
	= No summary data loaded on this level

Example 2 - Account level summary data

TWR values loaded on accounts owned by a client within a household do not aggregate and recalculate at the client level or household level.

Entity	Owner	Entity Type	TWR	Comments
Smith Family	-	Household	-	← TWR does not calculate because the TWR values loaded on the Clients within this Household are not aggregated and recalculated at the level above
Adam Smith	Smith Family	Client	-	← TWR does not calculate because the TWR values loaded on the Holding Accounts owned by this Client are not aggregated and recalculated at the level above
Account A	Adam Smith	Holding Account	7.25%	← TWR value of "7.25" loaded as summary data directly on Account A
Account B	Adam Smith	Holding Account	1.75%	← TWR value of "1.75" loaded as summary data directly on Account B
Margaret Smith	Smith Family	Client	-	← TWR does not calculate because the TWR values loaded on the Holding Accounts owned by this Client are not aggregated and recalculated at the level above
Account C	Margaret Smith	Holding Account	6.00%	← TWR value of "6.00" loaded as summary data directly on Account C
Account D	Margaret Smith	Holding Account	4.75%	← TWR value of "4.75" loaded as summary data directly on Account D

	= Summary data loaded on this level
	= No summary data loaded on this level

Method #2 - Values and Flows

Description

Historical account performance is rebuilt using account level values and flows (V&F). Values represent the market value for an account and flows represent the inflows/outflows or contributions/distributions for an account.

The historical account data is converted into two different transaction types and loaded into Addepar:

1. "Valuation" transactions for the account value data
2. "Generic Flow" transactions for the inflows/outflows

Rebuilding the account history using these two transaction types provides the required inputs to calculate metrics such as Value, TWR, Net Cash Flow, etc.

Pros

- Performance aggregates to higher levels of ownership
- Provides more flexibility with table groupings in reports
- Offers a balance between value and functionality

Cons

- No history of transactions
- Data validation vs source system is recommended since performance is recalculated in Addepar and there can be slight variations in the output

Data requirements

For account level V&F:

1. Daily account level valuations over the historical conversion period with no data gaps (providing monthly values can be an option but daily is preferred for the most accurate recalculation of TWR)
2. Daily account level flows OR daily security level transactions filter and converted into flows

Required import templates

Type	Import Template
Values	Position Valuations
Flows	Transactions

Example 1 - Values

Sample of values extracted from legacy system:

Date	Account #	Value
1/31/20	12345678	\$3,060,024
2/29/20	12345678	\$3,136,524
3/31/20	12345678	\$3,139,661
4/30/20	12345678	\$3,123,963
5/31/20	12345678	\$3,092,723
6/30/20	12345678	\$3,185,505

Values from legacy system converted in the format to be loaded into Addepar:

Date	Transaction Type	Owner Name	Owned Name	Value	Currency
1/31/20	Valuation	12345678	Historical data entity	\$3,060,024	USD
2/29/20	Valuation	12345678	Historical data entity	\$3,136,524	USD
3/31/20	Valuation	12345678	Historical data entity	\$3,139,661	USD
4/30/20	Valuation	12345678	Historical data entity	\$3,123,963	USD
5/31/20	Valuation	12345678	Historical data entity	\$3,092,723	USD
6/30/20	Valuation	12345678	Historical data entity	\$3,185,505	USD

Example 2 - Flows

Sample of security transactions extracted from legacy system:

Trade Date	Transaction Type	Security Name	Units	Amount
7/20/2020	Sell	Adobe Inc	-10	4543.5
7/20/2020	Sell	Intel Corp	-150	9138.55
7/17/2020	Dividend (Of Cash)	Cerner Corp	0	31.5
7/17/2020	Withdrawal	USD	-75000	-75000
7/17/2020	Withdrawal	USD	-150000	-150000
7/15/2020	Buy	WalMart Inc	75	-9849.59
7/15/2020	Sell	Discover Finl S	-60	2965.73
7/15/2020	Interest Income	USD	0.04	0.04
7/15/2020	Interest Income	USD	0.45	0.45
7/10/2020	Dividend (Of Cash)	Eastman Chemical Co	0	330
7/10/2020	Deposit	USD	367500	367500
7/8/2020	Sell	Walt Disney Co	-50	5656.62
7/8/2020	Sell	Verizon Communication	-100	5510.38
7/8/2020	Sell	Discover Finl S	-150	7199.09
7/8/2020	Buy	Intel Corp	250	-14550.93
7/7/2020	Dividend (Of Cash)	Merck & Co. Inc.	0	122
7/2/2020	Sell	Kroger Co	-200	6780.85
7/1/2020	Dividend (Of Cash)	Nike Inc Class B	0	55.13

Security transactions extracted from legacy systems are filtered and converted into flows:

Date	Transaction Type	Owner Name	Owned Name	Amount	Currency
7/17/2020	Generic Flow	12345678	Historical data entity	-75000	USD
7/17/2020	Generic Flow	12345678	Historical data entity	-150000	USD
7/10/2020	Generic Flow	12345678	Historical data entity	367500	USD

Method #3 - Transactions and Pricing

Description

Security transaction and pricing data is extracted from the legacy system, transformed into Addepar format and loaded into Addepar.

Pros

- Security level transaction data is retained for reporting and historical reference
- Provides the most flexibility with table groupings in reports
- Enables the most detailed level reporting out of all the conversion methods (asset class, security, etc)

Cons

- Requires the most time and resources
- Data validation vs source system is recommended since performance is recalculated in Addepar and there can be slight variations in the output

Data requirements

Complete data history of security transactions and daily security pricing for all accounts over the conversion period in-scope.

Required import templates

Type	Import Template
Prices	Historical Prices
Transactions	Transactions